

New Opportunities for Public Alerting

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Overview

- **NWS CAP feeds IPAWS and PLAN/CMAS**
- **CAP as an enabler for decision support and alert technologies**
- **New collaborative venue for NWS CAP users**
- **NWS CAP roadmap**
- **Improving alert origination tools for better communicating impact**

NWS Alerts in IPAWS and PLAN/CMAS



National Weather Service and other alerting authorities

Common Alerting Protocol (CAP)



IPAWS Alert Aggregators



Television



Radio



Cell Phone
(PLAN/CMAS)



Computer



Home Phone



Public Signage

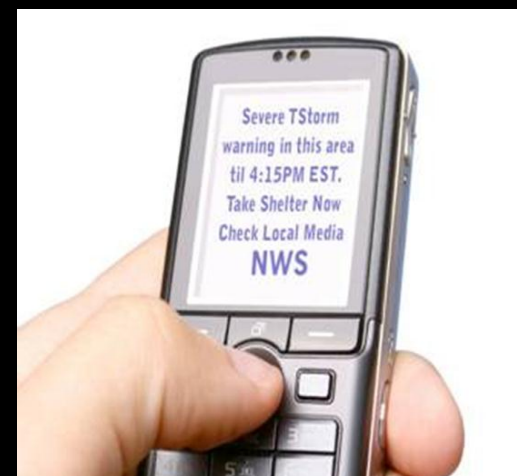
PLAN/CMAS Refresher

- **WARN Act of 2006 authorized DHS and FCC to initiate activities toward the development of a Commercial Mobile Alert Service**
 - *Presidential*
 - *Imminent threat to life and property (e.g., severe weather, HazMat, earthquake)*
 - *AMBER Alert/child abduction*
- **FCC established Commercial Mobile Service Alert Advisory Committee to develop recommendations for CMAS**
 - *Cell tower broadcast (not SMS text)*
 - *90 character maximum*
 - *Opt-out*

Collaboration with FEMA on IPAWS/PLAN

Challenges

- **Minimize desensitization and avoid opt-outs**
- **Criteria/threshold for “imminent threat”**
- **Maximize effectiveness of the 90 character message**



CAP Opens the Door for New Public Alert Technologies

XML-based information standard for public alerting

Benefits developers, re-packagers, broadcasters

- Low cost of entry
- Programmer friendly - easy to parse and reuse
- Derive many products from single message

```
<event>Flash Flood Warning</event>
<urgency>Immediate</urgency>
<severity>Severe</severity>
<certainty>Likely</certainty>
<effective>2010-06-03T14:00:00-05:00</effective><expires>2010-06-03T17:00:00-05:00</expires>
<senderName>NWS Memphis (Western Tennessee, Eastern Arkansas and Northern Mississippi)</senderName>
<headline>Flash Flood Warning issued June 03 at 2:00PM CDT expiring June 03 at 5:00PM CDT by NWS Memphis</headline>
<description>DOPPLER RADAR ESTIMATES 1 TO 3 INCHES OF RAINFALL HAS OCCURRED OVER THE PAST HOUR...</description>
<instruction>MOST FLOOD DEATHS OCCUR IN AUTOMOBILES. NEVER DRIVE YOUR VEHICLE INTO AREAS WHERE THE WATER COVERS THE ROADWAY...TURN AROUND...DONT DROWN</instruction>
<polygon>+36.20,-88.93 +36.18,-88.91 +36.05,-88.84 +35.99,-89.17 +35.99,-89.19 +35.98,-89.21 +35.94,-89.30 +36.17,-89.31 +36.21,-89.04 +36.20,-88.96 +36.22,-88.95 +36.20,-88.93</polygon>
```



Smart phones



Cell phones



Decision Support Tools



Consumer Navigation



Using CAP for Decision Support

<event>Flash Flood Warning</event>

<urgency>Immediate</urgency>

<severity>Severe</severity>

<certainty>Likely</certainty>

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<polygon>36.20,-88.93 36.18,-88.91 36.05,-88.84 35.99,-89.17 35.99,-89.19 35.98,-89.21 35.94,-89.30 36.17,-89.31 36.21,-89.04 36.20,-88.96 36.22,-88.95 36.20,-88.93</polygon>

- Alert information at its most granular levels
- Enabler
 - Personalize threat/improve warning response
 - Apps and decision support tools at low COE

CAP is Future Friendly

- Nimble: Can add parameters without breaking third party apps
- Can include additional parameters for Decision Support
- Can include real-time info substantiating the alert

Examples of Possible Future CAP Parameters

```
<parameter>
<valueName>NWSSstormMotionDescription</valueName>
<value>2010-11-10T12:46:00-06:00...164DEG...20KT...+29.45 -98.63</value>
</parameter>

<parameter>
<valueName>StormReport</valueName>
<value>+39.33,-76.82:Woodstock, MD:Trees down on I-70</value>
</parameter>

<parameter>
<valueName>Snow</valueName>
<value>12 or more inches</value>
</parameter>
```


Increase Warning Effectiveness by Personalizing the Threat

- Works across multiple alerting systems
- Simplifies task of activating a warning
 - *“Write once, distribute many times”*
- Improves response

Example of Possible Future CAP Content

Link to photo/video demonstrating the call to action

“Just in time” training on your TV or cell phone

Works across languages

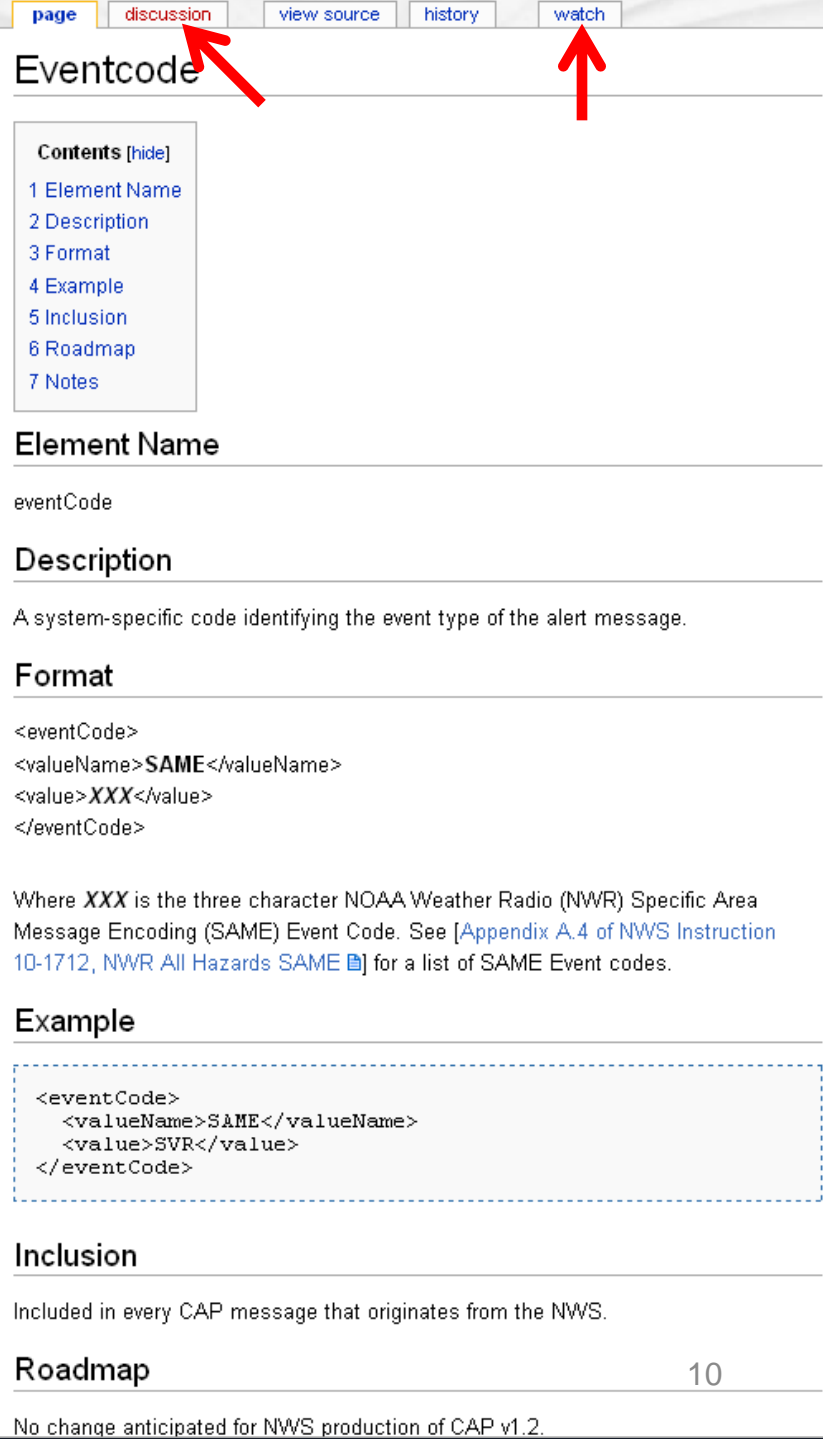
Warning effectiveness



CAP Wiki to Encourage 3rd Party Development

https://wiki.citizen.apps.gov/nws_developers

- **NWS CAP usage guide**
 - *Defines each CAP compliant message element*
- **Collaborative discussion encouraged**
- **Monitored by NWS**
- **Receive email notification of page changes**



The screenshot shows the 'Eventcode' page on the CAP Wiki. At the top, there are four tabs: 'page', 'discussion', 'view source', and 'history'. A red arrow points to the 'discussion' tab, and another red arrow points to the 'watch' tab. Below the tabs is a 'Contents [hide]' section with a list of links: '1 Element Name', '2 Description', '3 Format', '4 Example', '5 Inclusion', '6 Roadmap', and '7 Notes'. The main content area is divided into sections: 'Element Name' (containing 'eventCode'), 'Description' (containing a paragraph about system-specific codes), 'Format' (containing XML snippets), 'Example' (containing a code block in a dashed box), 'Inclusion' (containing a paragraph about CAP messages), and 'Roadmap' (containing a paragraph about CAP v1.2).

page discussion view source history watch

Eventcode

Contents [hide]

- 1 Element Name
- 2 Description
- 3 Format
- 4 Example
- 5 Inclusion
- 6 Roadmap
- 7 Notes

Element Name


eventCode

Description

A system-specific code identifying the event type of the alert message.

Format

```
<eventCode>
<valueName>SAME</valueName>
<value>XXX</value>
</eventCode>
```

Where **XXX** is the three character NOAA Weather Radio (NWR) Specific Area Message Encoding (SAME) Event Code. See [Appendix A.4 of NWS Instruction 10-1712, NWR All Hazards SAME 

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NWS Today

Blizzard Warning

URGENT - WINTER WEATHER MESSAGE
NATIONAL WEATHER SERVICE BILLINGS MT
1052 AM MST FRI NOV 26 2010

MTZ065-066-270600-
/O.EXT.KBYZ.BZ.W.0002.000000T0000Z-101127T1200Z/
LIVINGSTON AREA-BEARTOOTH FOOTHILLS-
INCLUDING THE LOCATIONS OF...LIVINGSTON...SPRINGDALE...FISHTAIL...
MCLEOD...NYE
1052 AM MST FRI NOV 26 2010

...BLIZZARD WARNING NOW IN EFFECT UNTIL 5 AM MST SATURDAY...

THE BLIZZARD WARNING IS NOW IN EFFECT UNTIL 5 AM MST SATURDAY.

- * TIMING: VERY HAZARDOUS DRIVING CONDITIONS WILL CONTINUE TODAY THROUGH EARLY SATURDAY MORNING.
- * IMPACTS: COUNTY OFFICIALS REPORT SIGNIFICANT BLOWING AND DRIFTING SNOW CONTINUES TO CREATE NEARLY IMPOSSIBLE TRAVEL CONDITIONS IN THE LIVINGSTON VICINITY WITH NEAR ZERO VISIBILITY AT TIMES AND LARGE SNOW DRIFTS. COUNTY ROADS IN THE LIVINGSTON AREA REMAIN CLOSED. SIMILAR CONDITIONS OF BLOWING AND DRIFTING SNOW AND NEAR ZERO VISIBILITIES CONTINUE TO BE REPORTED IN THE NYE AND FISHTAIL VICINITY IN THE BEARTOOTH FOOTHILLS. TRAVELERS ARE URGED TO USE EXTREME CAUTION OR AVOID THESE AREAS.
- * WINDS: WEST WINDS OF 35 TO 50 MPH WITH GUSTS TO 65 MPH CAN BE EXPECTED ACROSS THESE AREAS THIS MORNING. THE STRONGEST WINDS WILL BE IN THE LIVINGSTON VICINITY.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

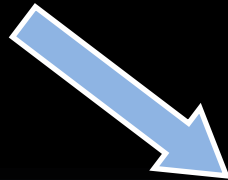
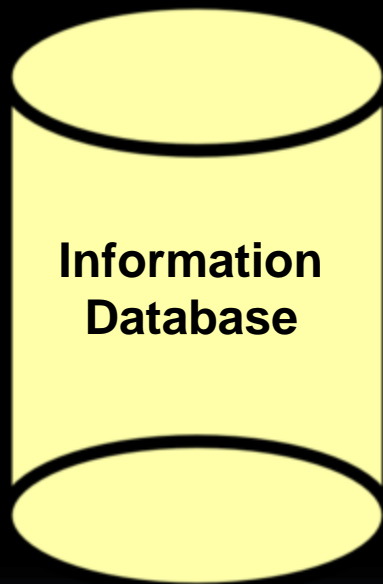
A BLIZZARD WARNING IS ISSUED WHEN SUSTAINED WIND SPEEDS OR FREQUENT GUSTS OF OVER 35 MPH ARE EXPECTED WITH CONSIDERABLE FALLING AND OR BLOWING AND DRIFTING SNOW. VISIBILITIES WILL BECOME POOR WITH WHITEOUT CONDITIONS AT TIMES. THOSE VENTURING OUTDOORS MAY BECOME LOST OR DISORIENTED SO PERSONS IN THE WARNING AREA ARE ADVISED TO STAY INDOORS.



CAP Message

NWS CAP feeds available at
<http://alerts.weather.gov/cap>

NWS with Next Generation Warning Tool (2013)



CAP Message

Blizzard Warning

URGENT - WINTER WEATHER MESSAGE
NATIONAL WEATHER SERVICE BILLINGS MT
1052 AM MST FRI NOV 26 2010

MTZ065-066-270600-
/O.EXT.KBYZ.BZ.W.0002.000000T0000Z-101127T1200Z/
LIVINGSTON AREA-BEARTOOTH FOOTHILLS-
INCLUDING THE LOCATIONS OF...LIVINGSTON...SPRINGDALE...FISHTAIL...
MCLEOD...NYE
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A BLIZZARD WARNING IS ISSUED WHEN SUSTAINED WIND SPEEDS OR FREQUENT GUSTS OF OVER 35 MPH ARE EXPECTED WITH CONSIDERABLE FALLING AND OR BLOWING AND DRIFTING SNOW. VISIBILITIES WILL BECOME POOR WITH WHITEOUT CONDITIONS AT TIMES. THOSE VENTURING OUTDOORS MAY BECOME LOST OR DISORIENTED SO PERSONS IN THE WARNING AREA ARE ADVISED TO STAY INDOORS.

Future: Better Tools for Communicating Impact

<urgency>value</urgency>

- Immediate
- Expected
- Future
- Past

<severity>value</severity>

- Extreme
- Severe
- Moderate
- Minor

<certainty>value</certainty>

- Observed
- Likely
- Possible
- Unlikely

Today: Pre-assigned from
table of NWS alert types

Severe Thunderstorm Warning

<urgency>Immediate</urgency>

<severity>Severe</severity>

<certainty>Likely</certainty>

2013+: Assigned by forecaster
using next generation warning tool

Crippling 1/2" snow squall

<urgency>Immediate</urgency>

<severity>Severe</severity>

<certainty>Likely</certainty>

NWS CAP Roadmap

Milestone/Goal	Date
CAP v1.2 Adopted by FEMA for IPAWS	September 2010
CAP v1.1 Operational in NWS at alerts.weather.gov	March 2011
NWS CAP guide on public collaborative wiki in preparation for CAP v1.2	June 2011
CAP v1.2 (IPAWS Compliant) Experimental in NWS	August 2011
NWS CAP push to FEMA IPAWS Aggregator in time for CMAS	November 2011
CAP v1.2 Initial Operating Capability	December 2011
Native production of NWS CAP messages using NWS next generation warning tool gives forecasters enhanced control over CAP content)	2013+

Questions?

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